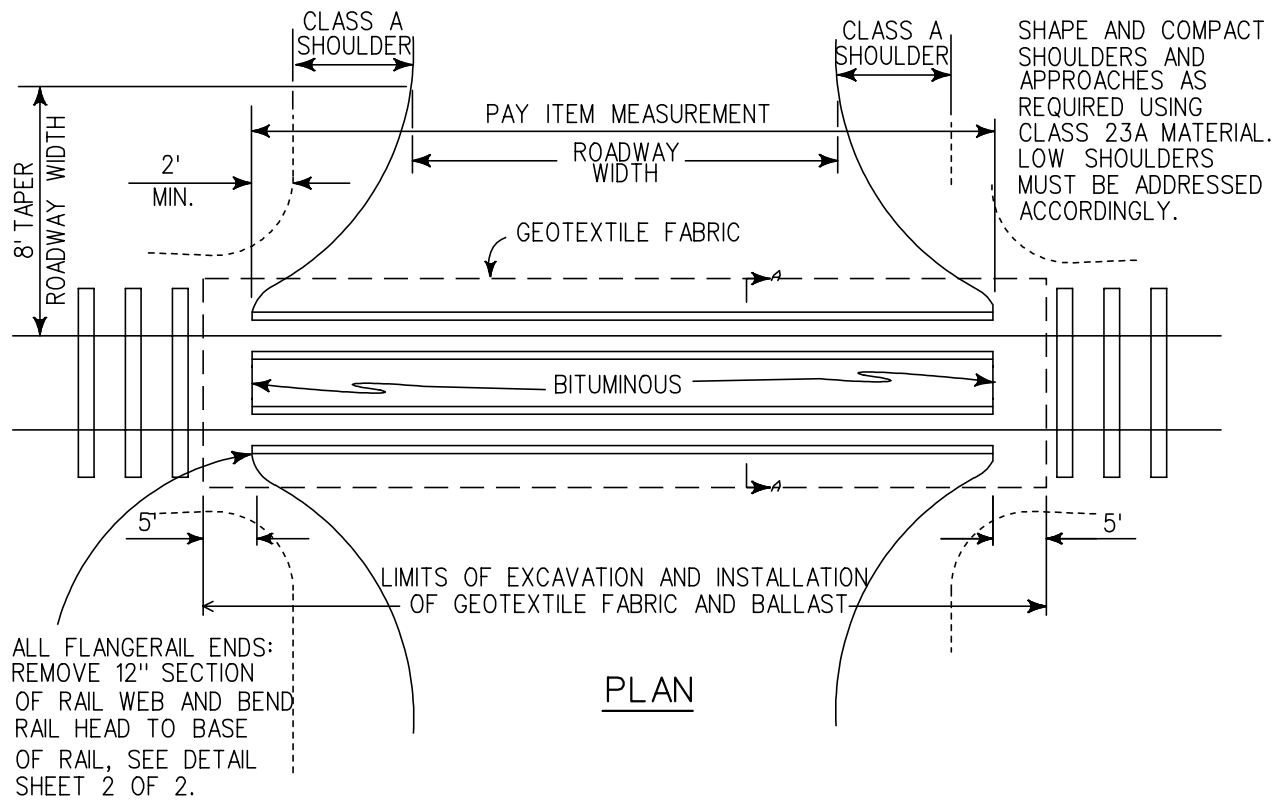


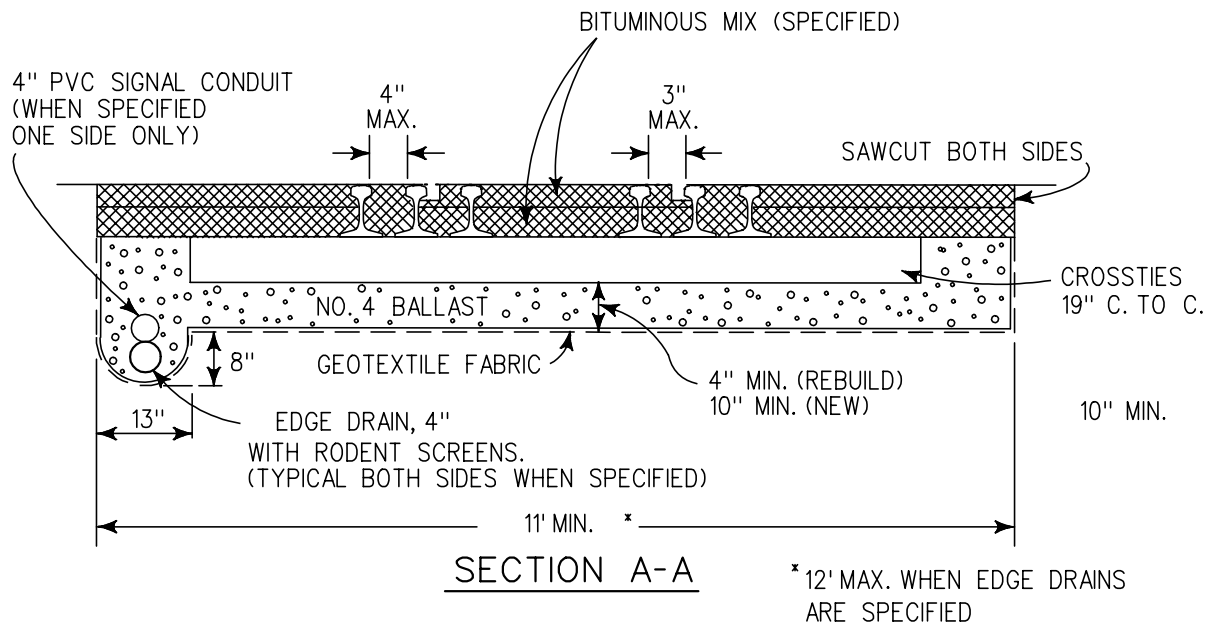
# RAILROAD TYPICAL PLANS

## 2006





WHEEL FLANGE VOIDS INSIDE HEADS OF RUNNING RAILS SHALL BE 1.5 TO 2 INCHES WIDE AND 1.5 TO 2 INCHES DEEP.



*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

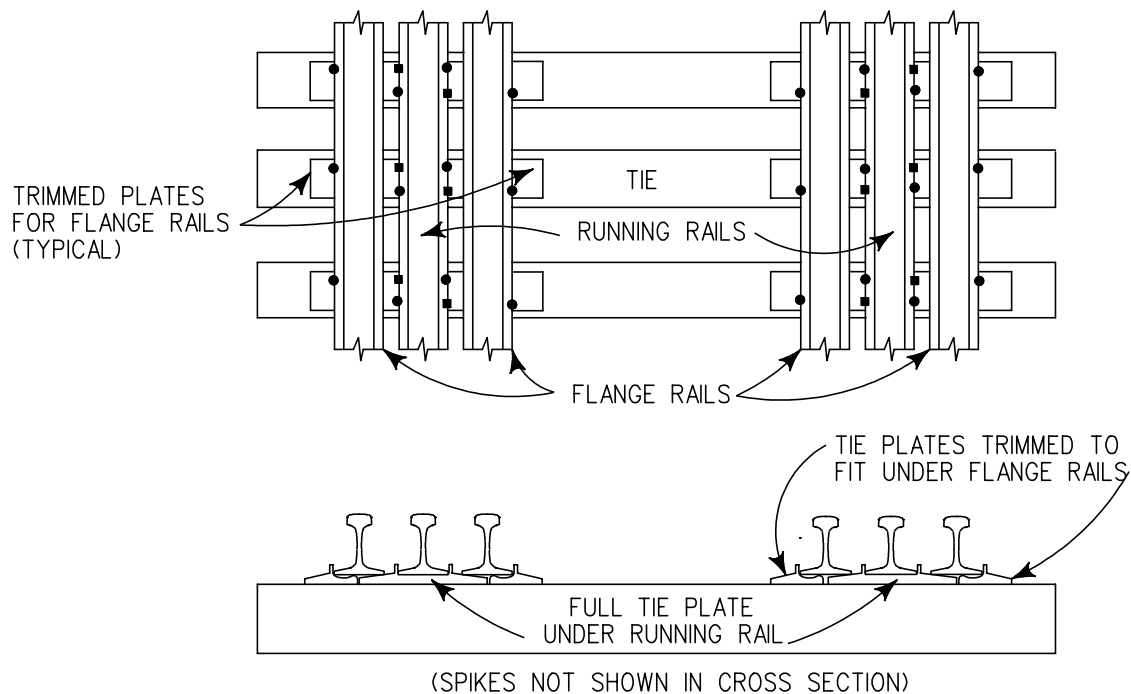
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**RAIL FLANGEWAY - BITUMINOUS  
GRADE CROSSING**

1-26-05  
REVISION DATE

**RR-10**

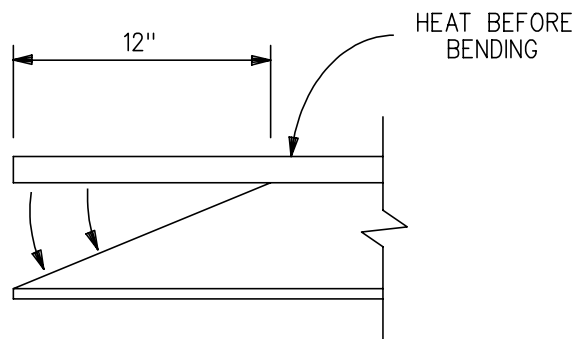
SHEET **1** OF **2**

## FLANGE RAIL SPIKING PATTERN



- NOTES: 1) ■ = TRACK SPIKE HOLDING RUNNING RAIL  
● = DRIVE SPIKE
- 2) BORE HOLES FOR DRIVE SPIKES SHALL BE  $\frac{1}{2}$ " DIAMETER.
- 3) ALL RAILS TO BE SAME SIZE.
- 4) SPIKE RUNNING RAIL EVERY TIE, USING 2 SPIKES PER RAIL.
- 5) PLACE TIE PLATES UNDER FLANGE RAILS ON ONE END OF EACH TIE. TRIM TIE PLATES FOR FLANGE RAILS TO FIT, RETAINING SHOULDER SECTION OF PLATE.
- 6) DRIVE SPIKES MAY BE REPLACED WITH TRACK SPIKES IN ALL PRIVATE CROSSINGS.

## FLANGE RAIL END TREATMENT



REMOVE 12" SECTION OF RAIL WEB AND BEND  
RAIL HEAD TO BASE OF RAIL, SEE DETAIL ABOVE.

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

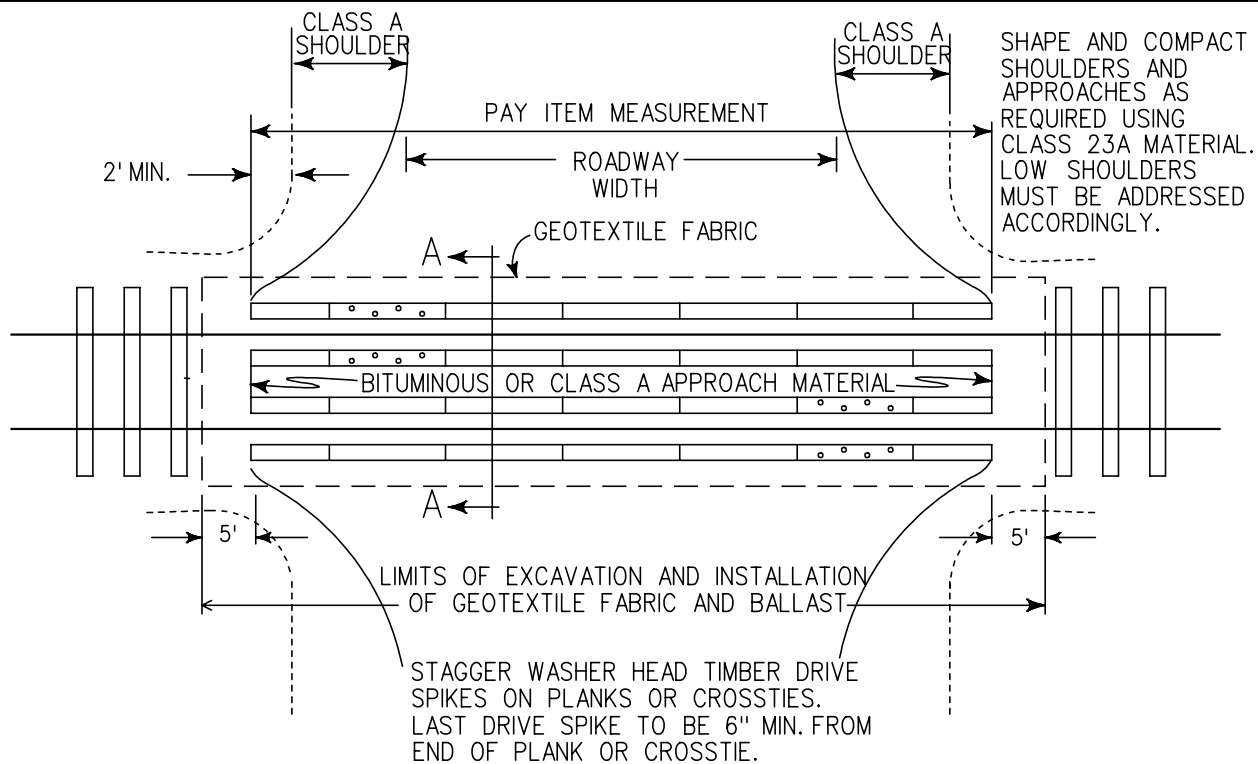
*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**RAIL FLANGWAY - BITUMINOUS  
GRADE CROSSING**

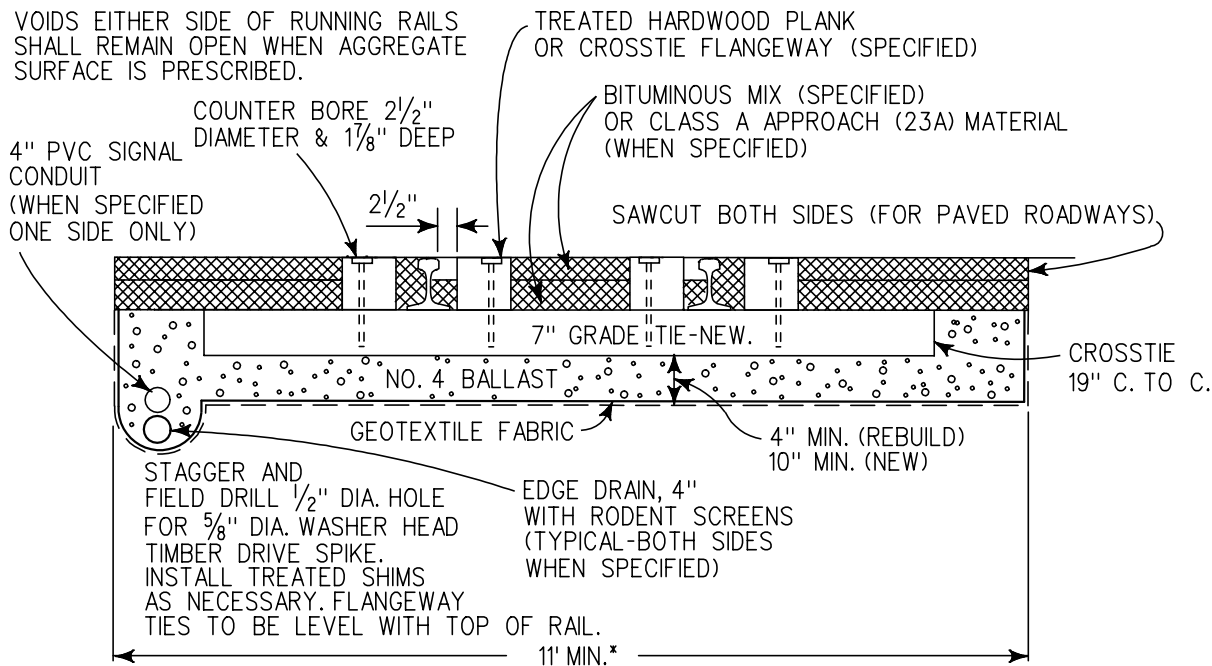
1-26-05  
REVISION DATE

**RR-10**

SHEET **2** OF **2**



PLAN



SECTION A-A

\*12' MAX. WHEN EDGE DRAINS ARE SPECIFIED

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

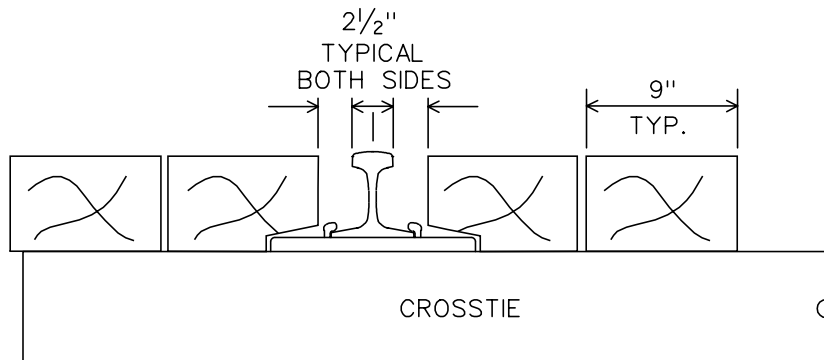
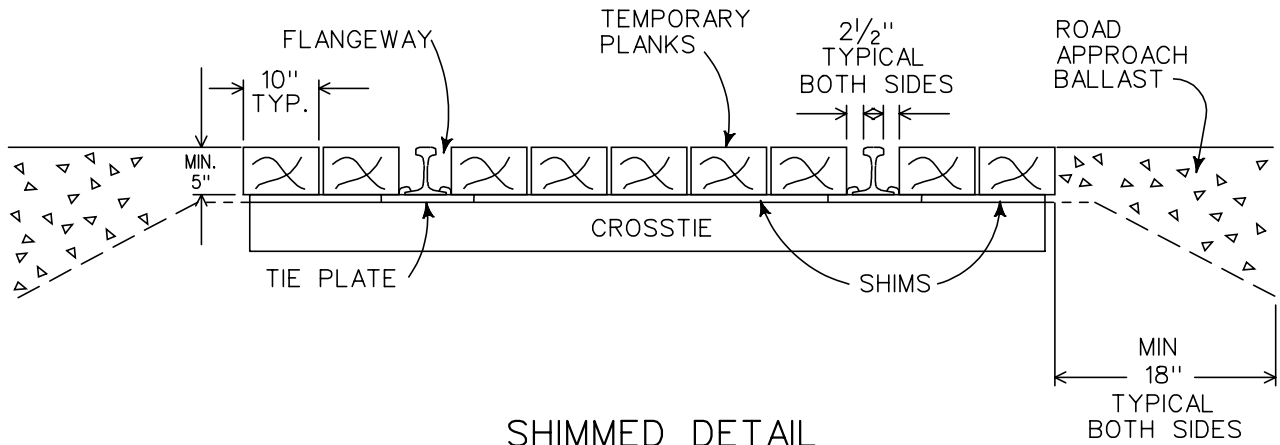
**CROSSTIE FLANGWAY - BITUMINOUS  
HARDWOOD PLANK - BITUMINOUS GRAVEL**

1-26-05  
REVISION DATE

**RR-11**

SHEET **1** OF **1**

INSTALL 4 WASHER HEAD TIMBER DRIVE SPIKES MIN. PER 10' PLANK OR 3 WASHER HEAD TIMBER DRIVE SPIKES MIN. PER 8' PLANK. STAGGER WASHER HEAD TIMBER DRIVE SPIKES LONGITUDINALLY ALONG PLANKS. INSTALL OUTSIDE WASHER HEAD TIMBER DRIVE SPIKES 6" FROM ENDS OF PLANKS. DRILL  $\frac{1}{2}$ " DIA. HOLE FOR  $\frac{5}{8}$ " DIA. WASHER HEAD TIMBER DRIVE SPIKES. COUNTER BORE  $2\frac{1}{2}$ " DIA. AND  $1\frac{7}{8}$ " DEEP.



NOTE: TOP OF PLANK ELEVATION SHALL EQUAL TOP OF RAIL ELEVATION, PLUS OR MINUS  $\frac{1}{4}$ ".

TEMPORARY PLANK GRADE CROSSING MAY BE CONSTRUCTED WITH EITHER SHIMMED OR NON-SHIMMED DETAIL

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

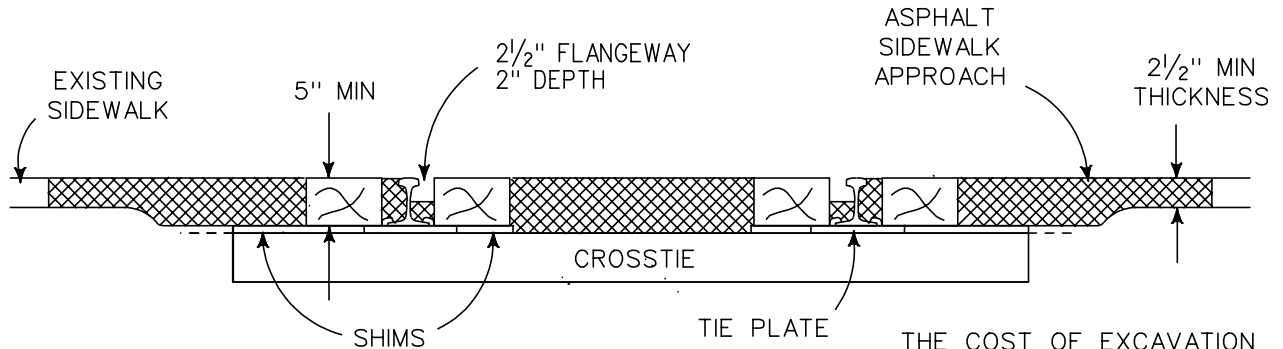
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**TEMPORARY PLANK  
GRADE CROSSING**

1-26-05  
REVISION DATE

**RR-12**

**1** SHEET  
OF **1**

INSTALL 4 WASHER HEAD TIMBER DRIVE SPIKES MIN. PER 10' PLANK OR 3 SPIKES MIN. PER 8' PLANK. STAGGER SPIKES LONGITUDINALLY ALONG PLANKS NOT LESS THAN 3" FROM EDGES. INSTALL OUTSIDE SPIKES NOT LESS THAN 6" FROM ENDS OF PLANKS. DRILL  $\frac{1}{2}$ " DIA. HOLE FOR  $\frac{5}{8}$ " DIA. SPIKES. COUNTER BORE  $2\frac{1}{2}$ " DIA. AND  $1\frac{7}{8}$ " DEEP.

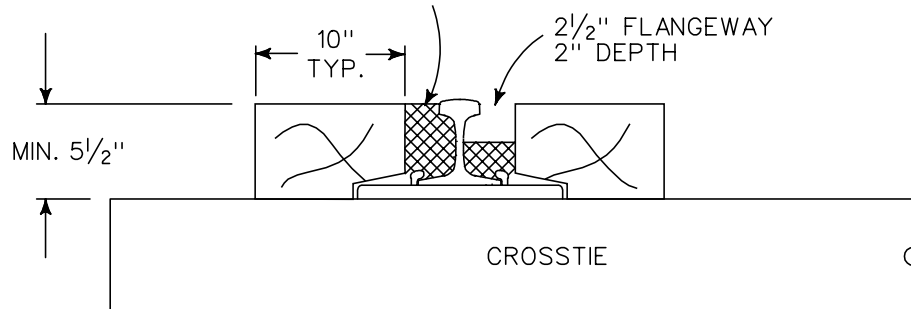


### SHIMMED DETAIL

THE COST OF EXCAVATION REQUIRED TO ATTAIN A MIN.  $2\frac{1}{2}$ " ASPHALT THICKNESS IS INCLUDED IN THE COST OF THE PROJECT.

NOTE: WIDTH OF PROPOSED ASPHALT SIDEWALK TO MATCH WIDTH OF EXISTING SIDEWALK. PROPOSED SURFACE TO MATCH EXISTING SIDEWALK SURFACE. LENGTH OF PROPOSED ASPHALT SIDEWALK WILL BE AS PRESCRIBED IN THE PROJECT PLANS OR AS DIRECTED BY THE F.D.I. OR ENGINEER.

FILL WITH ASPHALT MATERIAL OR OTHER APPROVED MATERIAL.



### NON-SHIMMED DETAIL

NOTE: TOP OF PLANK ELEVATION SHALL EQUAL TOP OF RAIL ELEVATION, PLUS OR MINUS  $\frac{1}{4}$ ".

TIMBER PLANK SIDEWALK CROSSING MAY BE CONSTRUCTED WITH EITHER SHIMMED OR NON-SHIMMED DETAIL

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENACE-SUPERVISOR

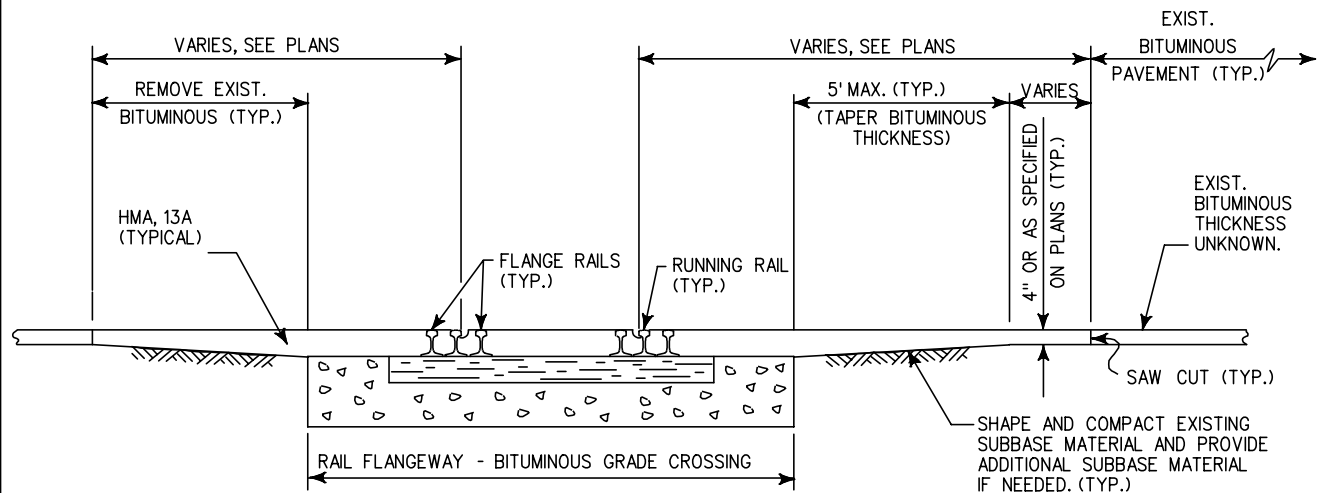
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

## **TIMBER PLANK SIDEWALK CROSSING**

1-26-05  
REVISION DATE

**RR-13**

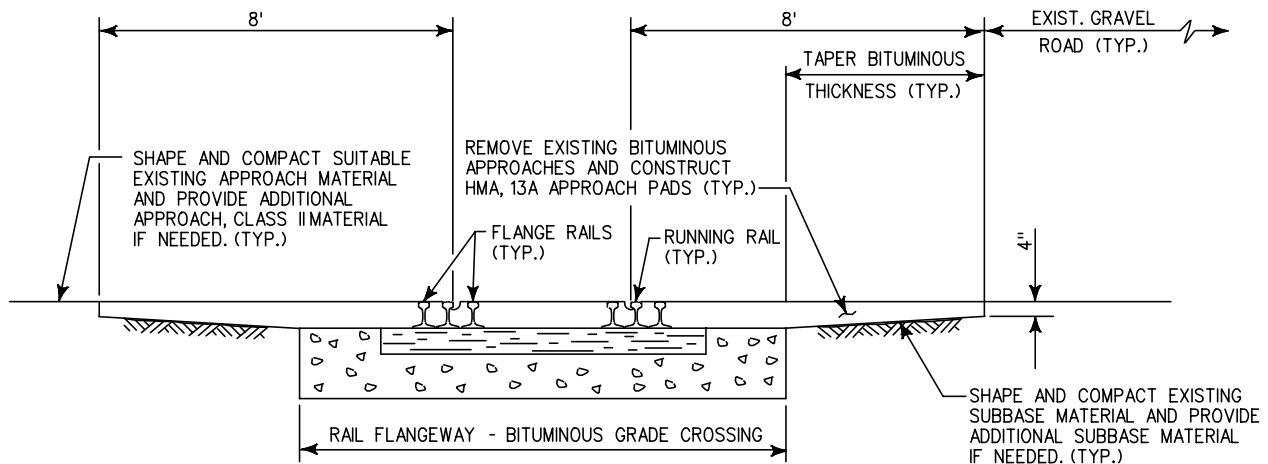
**1** SHEET  
OF **1**



NOTE: THE COST OF SAW CUTTING, REMOVING, AND DISPOSING OF EXISTING BITUMINOUS PAVEMENT OUTSIDE OF THE RENEW OR REBUILD GRADE CROSSING LIMITS, AND THE PREPARATION OF THE SUBBASE FOR THE BITUMINOUS APPROACHES ARE INCLUDED IN THE PAY ITEM "HMA, 13A".

## TYPE I

TYPE I IS USED WHEN THE EXISTING ROAD IS BITUMINOUS PAVEMENT.



NOTE: THE COST OF REMOVING AND DISPOSING OF EXISTING BITUMINOUS OR GRAVEL APPROACHES OUTSIDE OF THE RENEW OR REBUILD GRADE CROSSING LIMITS, THE PREPARATION OF SUBBASE FOR THE BITUMINOUS APPROACHES, AND THE GRADING OF EXISTING GRAVEL APPROACHES IS INCLUDED IN THE PAY ITEM "HMA, 13A".

## TYPE II

TYPE II IS USED WHEN THE EXISTING ROAD IS GRAVEL.

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

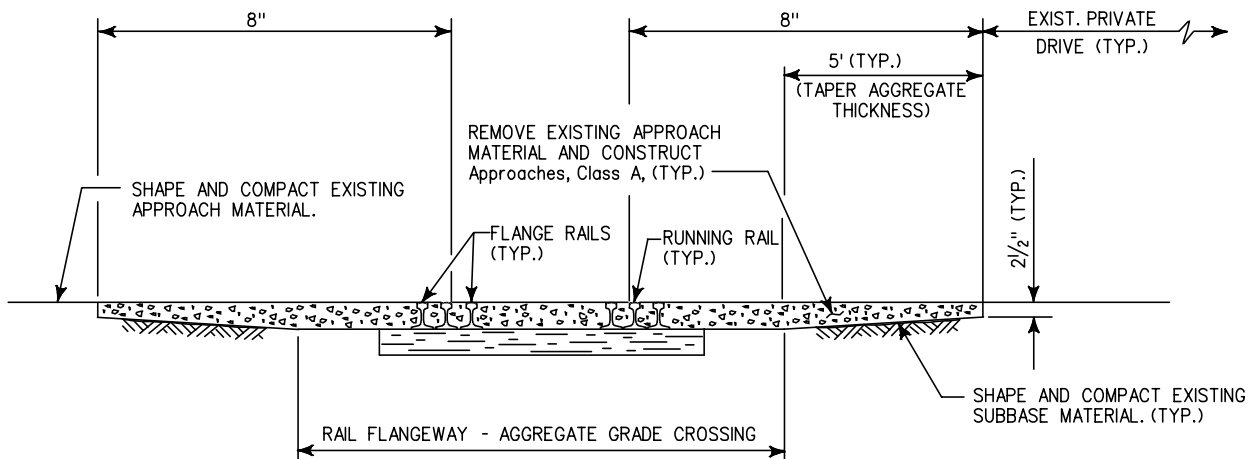
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**GRADE CROSSING APPROACHES**

2-26-05  
REVISION DATE

**RR-20**

SHEET **1** OF **2**





NOTE: THE COST OF REMOVING AND DISPOSING OF EXISTING APPROACH MATERIAL OUTSIDE OF THE RENEW GRADE CROSSING LIMITS, THE PREPARATION OF SUBBASE FOR THE CLASS A APPROACHES, AND THE GRADING OF EXISTING APPROACH MATERIAL IS INCLUDED IN THE PAY ITEM "Approaches, Class A".

### TYPE III

TYPE III IS USED AT PRIVATE CROSSING.

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENACE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

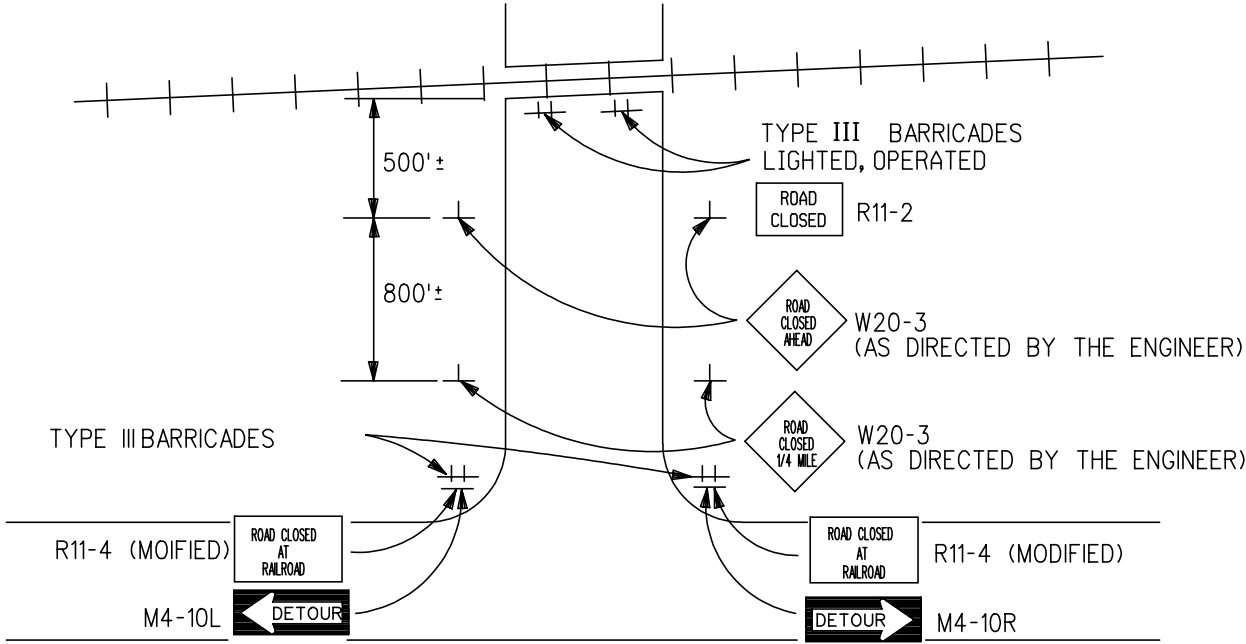
## **GRADE CROSSING APPROACHES**

2-26-05  
REVISION DATE

**RR-20**

SHEET **2** OF **2**

TYPICAL SIGNING REQUIREMENTS  
(MICHIGAN MANUAL OF UNIFORM  
TRAFFIC CONTROL DEVICES)



TYPE A ROAD CLOSURE

NOTES:

SEE MDOT STANDARD PLAN R-125-A  
FOR BARRICADE REQUIREMENTS

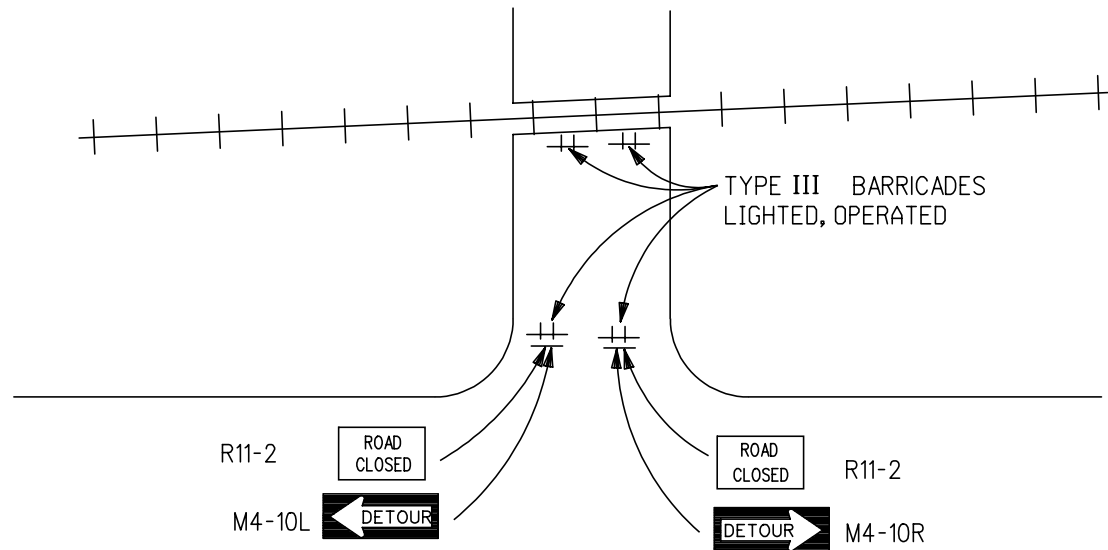
PLACEMENT OF TRAFFIC CONTROL  
DEVICES AS DIRECTED BY THE  
ENGINEER.

CODE	TYPE	DIMENSIONS
M4-10	C	18" X 48"
R11-3	B	30" X 60"
W20-3	B	48' X 48"
R11-2	B	30" X 48"

FACE MATERIAL TYPE	BACKGROUND	LEGEND
A	REFLECTORIZED	REFLECTORIZED
B	REFLECTORIZED	NON-REFLECTORIZED
C	NON-REFLECTORIZED	REFLECTORIZED
D	NON-REFLECTORIZED	NON-REFLECTORIZED

<i>William C. Homrich</i> PROJECT DEVELOPMENT-ENGINEER	MICHIGAN DEPARTMENT OF TRANSPORTATION RAILROAD TYPICAL PLAN FOR <b>ROAD CLOSURE</b>	
<i>David O. Whaley</i> CONSTRUCTION & MAINTENANCE-SUPERVISOR	1-20-05 REVISION DATE	<b>RR-30</b> SHEET <b>1</b> OF <b>4</b>

# TYPICAL SIGNING REQUIREMENTS (MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES)



## TYPE B ROAD CLOSURE

### NOTES:

SEE MDOT STANDARD PLAN R-125-A  
FOR BARRICADE REQUIREMENTS

PLACEMENT OF TRAFFIC CONTROL  
DEVICES AS DIRECTED BY THE  
ENGINEER.

CODE	TYPE	DIMENSIONS
M4-10	C	18" X 48"
R11-2	B	30" X 48"

FACE MATERIAL TYPE	BACKGROUND	LEGEND
A	REFLECTORIZED	REFLECTORIZED
B	REFLECTORIZED	NON-REFLECTORIZED
C	NON-REFLECTORIZED	REFLECTORIZED
D	NON-REFLECTORIZED	NON-REFLECTORIZED

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

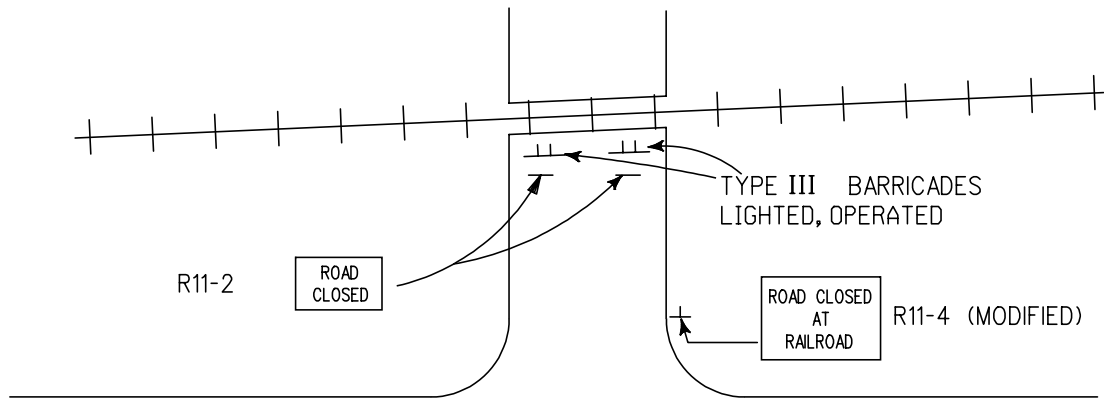
## ROAD CLOSURE

1-20-05  
REVISION DATE

**RR-30**

SHEET **2** OF **4**

# TYPICAL SIGNING REQUIREMENTS (MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES)



## TYPE C ROAD CLOSURE

### NOTES:

SEE MDOT STANDARD PLAN R-125-A  
FOR BARRICADE REQUIREMENTS

PLACEMENT OF TRAFFIC CONTROL  
DEVICES AS DIRECTED BY THE  
ENGINEER.

CODE	TYPE	DIMENSIONS
R11-2	B	30" X 48"
R11-4	B	30" X 60"

FACE MATERIAL TYPE	BACKGROUND	LEGEND
A	REFLECTORIZED	REFLECTORIZED
B	REFLECTORIZED	NON-REFLECTORIZED
C	NON-REFLECTORIZED	REFLECTORIZED
D	NON-REFLECTORIZED	NON-REFLECTORIZED

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

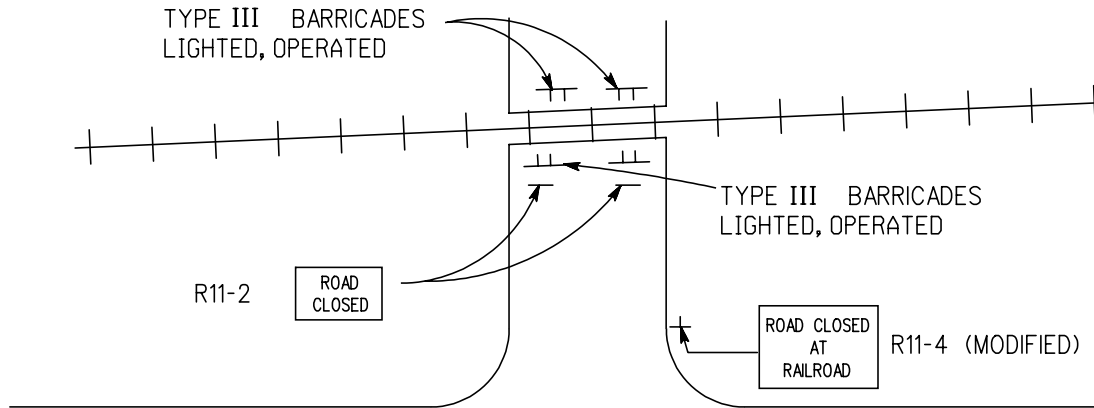
## ROAD CLOSURE

1-20-05  
REVISION DATE

**RR-30**

SHEET **3** OF **4**

# TYPICAL SIGNING REQUIREMENTS (MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES)



## TYPE D ROAD CLOSURE

### NOTES:

SEE MDOT STANDARD PLAN R-125-A  
FOR BARRICADE REQUIREMENTS

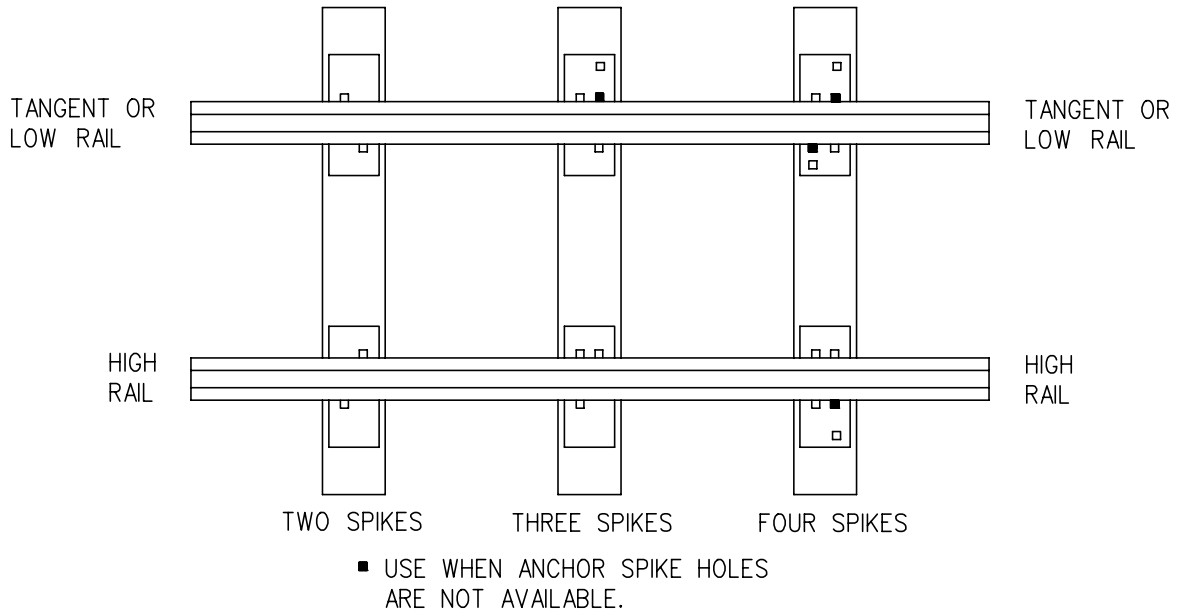
PLACEMENT OF TRAFFIC CONTROL  
DEVICES AS DIRECTED BY THE  
ENGINEER.

CODE	TYPE	DIMENSIONS
R11-2	B	30" X 48"
R11-4	B	30" X 60"

FACE MATERIAL TYPE	BACKGROUND	LEGEND
A	REFLECTORIZED	REFLECTORIZED
B	REFLECTORIZED	NON-REFLECTORIZED
C	NON-REFLECTORIZED	REFLECTORIZED
D	NON-REFLECTORIZED	NON-REFLECTORIZED

<p><i>William C. Homrich</i> PROJECT DEVELOPMENT-ENGINEER</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION RAILROAD TYPICAL PLAN FOR</p>	
	<p><b>ROAD CLOSURE</b></p>	
<p><i>David O. Whaley</i> CONSTRUCTION &amp; MAINTENACE-SUPERVISOR</p>	<p>1-20-05 REVISION DATE</p>	<p><b>RR-30</b> SHEET 4 OF 4</p>

## SPIKING PATTERNS



## MINIMUM NUMBER OF SPIKES PER TIE PLATE

ALIGNMENT		SPEED IN MPH FOR TERRITORY								
		10	15	20	25	30	35	40	45	50 AND UP
TANGENTS		2	2	2	2	2	2	2	2	4
CURVES										
GREATER THAN OR EQUAL TO	BUT LESS THAN	10	15	20	25	30	35	40	45	50 AND UP
0°	2°	2	2	2	2	2	2	2	4	4
2°	5°	2	2	2	3	3	3	4	4	4
5°	8°	2	3	3	3	4	4	4	4	4
8°	10°	2	3	3	4	4	4	4		
10° AND OVER		2	3	4	4	4	4			

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

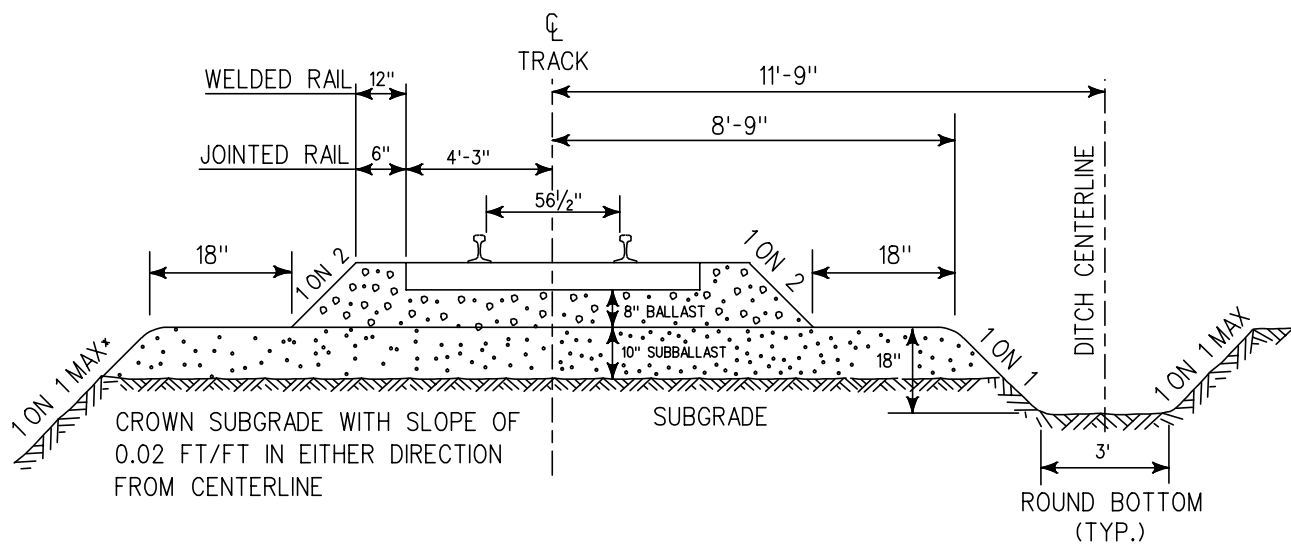
### **RAIL SPIKING PATTERNS**

1-19-05  
REVISION DATE

**RR-40**

SHEET **1** OF **1**

## TYPICAL TRACK STRUCTURE SECTION



## TANGENT TRACK

\* FOR RECONSTRUCTION AND REHABILITATION, FRONTSLOPES SHALL BE  
CONSISTANT WITH EXISTING SLOPES.

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

## **TYPICAL TRACK STRUCTURE SECTION**

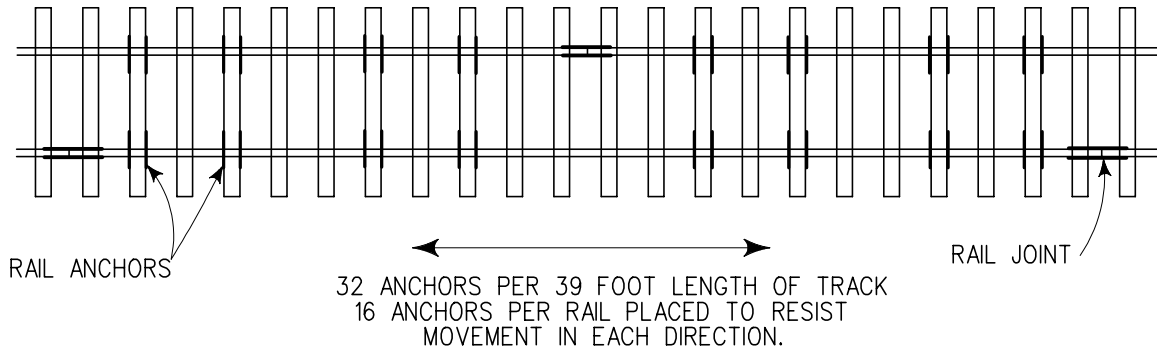
1-26-05  
REVISION DATE

**RR-41**

SHEET **1** OF **1**

## ANCHOR LOCATIONS IN TRACK

RAIL TRAFFIC ABOUT THE SAME IN BOTH DIRECTIONS



### NOTES:

#### TRACK GRADES

- \* ANCHOR PATTERN MAY BE ADJUSTED FOR GRADES
- \* NUMBER OF ANCHORS MAY INCREASE FOR GRADES

#### BRIDGES

- \* RAIL ON BRIDGES WILL NOT BE ANCHORED IF DIRECT FIXATION OR OPEN DECK. BALLASTED DECKS GET ANCHORED AS PER PATTERN SHOWN ABOVE.
- \* APPROACHES TO BRIDGES WILL BE BOX ANCHORED EVERY OTHER TIE FOR 200' IN BOTH DIRECTIONS FROM THE BRIDGE.

#### ROAD CROSSINGS

- \* RAIL IN CROSSINGS WILL NOT BE ANCHORED
- \* APPROACHES TO CROSSINGS WILL BE BOX ANCHORED EVERY TIE FOR 50' IN BOTH DIRECTIONS FROM THE CROSSING.

#### PRIVATE CROSSINGS

- \* ANCHOR APPROACHES AND CROSSINGS AS PER TRACK PATTERN SHOWN ABOVE.

#### TURNOUTS

- \* APPROACHES TO TURNOUTS WILL BE BOX ANCHORED EVERY OTHER TIE FOR 200' IN BOTH DIRECTIONS FROM THE TURNOUT.
- \* RAIL WITHIN THE TURNOUT WILL BE BOX ANCHORED EVERY OTHER TIE ON RAIL THAT CAN RECEIVE ANCHORS, EXCLUDING THE SWITCH.
- \* THE ANCHORING WILL CONTINUE THROUGH THE LAST LONG TIE OF THE TURNOUT
- \* 160 ANCHORS WITHIN #8 TURNOUT
- \* 184 ANCHORS WITHIN #10 TURNOUT

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**RAIL ANCHORING**  
FOR DESIGN SPEEDS OF 25 M.P.H. AND OVER

1-20-05  
REVISION DATE

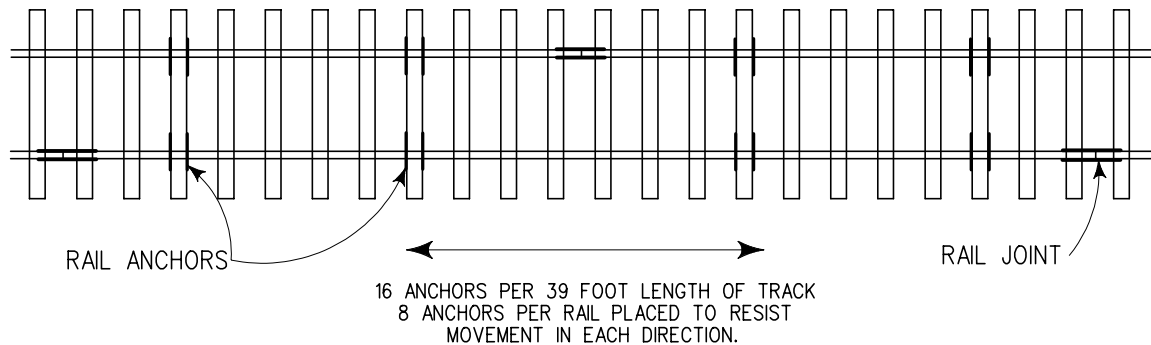
**RR-42**

SHEET **1** OF **2**



# ANCHOR LOCATIONS IN TRACK

RAIL TRAFFIC ABOUT THE SAME IN BOTH DIRECTIONS



## NOTES:

### TRACK GRADES

- \* ANCHOR PATTERN MAY BE ADJUSTED FOR GRADES
- \* NUMBER OF ANCHORS MAY INCREASE FOR GRADES

### BRIDGES

- \* RAIL ON BRIDGES WILL NOT BE ANCHORED IF DIRECT FIXATION OR OPEN DECK. BALLASTED DECKS GET ANCHORED AS PER PATTERN SHOWN ABOVE.
- \* APPROACHES TO BRIDGES WILL BE BOX ANCHORED EVERY OTHER TIE FOR 200' IN BOTH DIRECTIONS FROM THE BRIDGE.

### ROAD CROSSINGS

- \* RAIL IN CROSSINGS WILL NOT BE ANCHORED
- \* APPROACHES TO CROSSINGS WILL BE BOX ANCHORED EVERY TIE FOR 50' IN BOTH DIRECTIONS FROM THE CROSSING.

### PRIVATE CROSSINGS

- \* ANCHOR APPROACHES AND CROSSINGS AS PER TRACK PATTERN SHOWN ABOVE.

### TURNOUTS

- \* APPROACHES TO TURNOUTS WILL BE BOX ANCHORED EVERY OTHER TIE FOR 200' IN BOTH DIRECTIONS FROM THE TURNOUT.
- \* RAIL WITHIN THE TURNOUT WILL BE BOX ANCHORED EVERY OTHER TIE ON RAIL THAT CAN RECEIVE ANCHORS, EXCLUDING THE SWITCH.
- \* THE ANCHORING WILL CONTINUE THROUGH THE LAST LONG TIE OF THE TURNOUT
- \* 160 ANCHORS WITHIN #8 TURNOUT
- \* 184 ANCHORS WITHIN #10 TURNOUT

William C. Homrich  
PROJECT DEVELOPMENT-ENGINEER

David O. Whaley  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

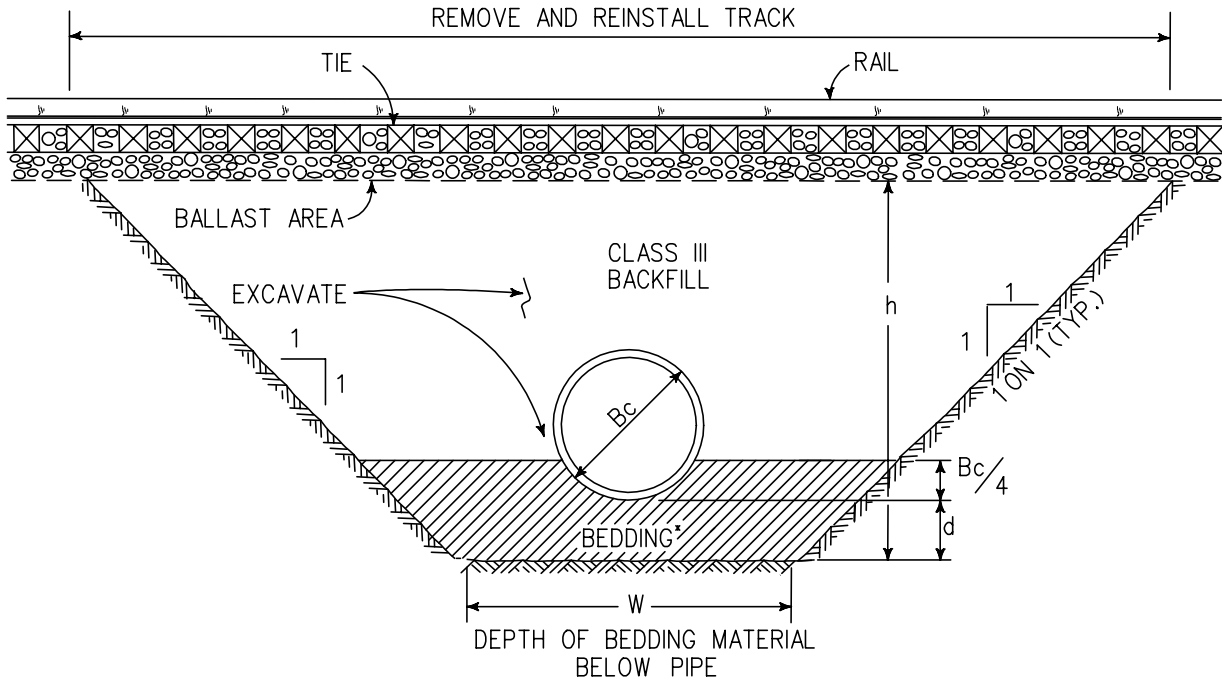
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**RAIL ANCHORING**  
FOR 10 M.P.H. DESIGN SPEED

1-20-05  
REVISION DATE

**RR-42**

SHEET **2** OF **2**

## TRENCH DETAIL



D	d
27" & SMALLER	6"
30" TO 60"	9"
60" & LARGER	12"

$B_c$  = OUTSIDE DIAMETER  
 $W = B_c + 8"$  OR  $1\frac{1}{2} \times B_c$   
 (WHICHEVER IS GREATER)  
 $d$  = DEPTH OF BEDDING  
 MATERIAL BELOW PIPE  
 $D$  = INSIDE DIAMETER  
 $h$  = DEPTH OF EXCAVATION  
 BELOW BALLAST

NOTE: PLACE AND COMPACT CULVERT BEDDING TO THE LEVEL OF  $d$  PLUS  $\frac{1}{4}$  THE OUTSIDE DIAMETER OF THE PIPE CULVERT ( $d + B_c/4$ ) AND THEN EXCAVATE AND SHAPE A TRENCH TO FIT THE PIPE. AFTER PLACING CULVERT, CONTINUE FILLING WITH CLASS III BACKFILL.

\* CULVERT BEDDING SHALL BE CLASS III BACKFILL EXCEPT WHEN CLASS II CULVERT BEDDING IS NOTED ON THE PLANS.

CLASS II CULVERT BEDDING AND CLASS III BACKFILL SHALL BE PLACED AND COMPACTED IN 9" MAXIMUM LAYERS, UNLESS OTHERWISE NOTED. COMPACTION SHALL REACH A MINIMUM DENSITY OF 95% OF THE MAXIMUM UNIT WEIGHT OF THE MATERIAL BEING COMPACTED.

William C. Homrich  
 PROJECT DEVELOPMENT-ENGINEER

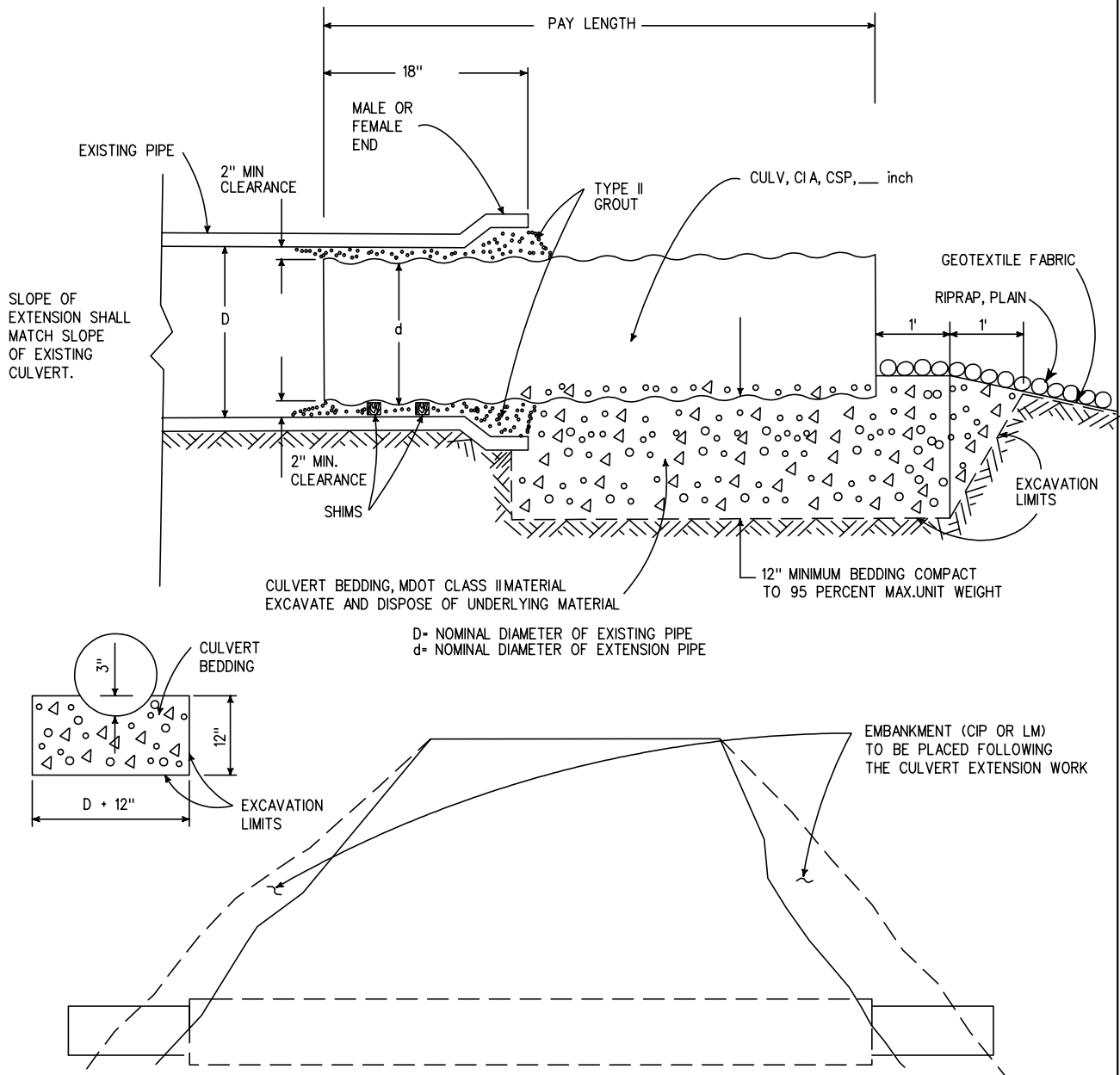
David O. Whaley  
 CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
 RAILROAD TYPICAL PLAN FOR  
**CULVERT INSTALLATION  
 UNDER RAILROAD TRACK**

1-24-05  
 REVISION DATE

**RR-50**

SHEET **1** OF **1**



*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

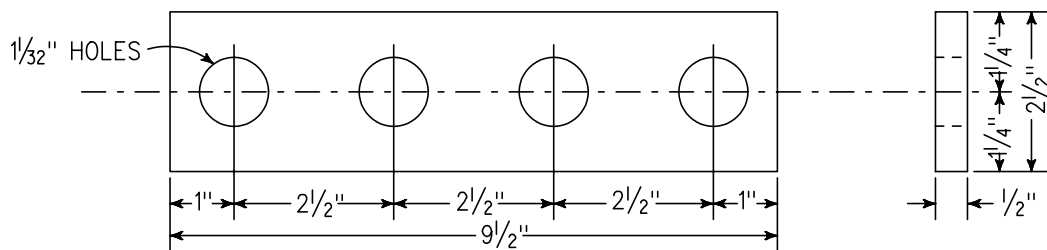
*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**CULVERT (CSP) EXTENSION**

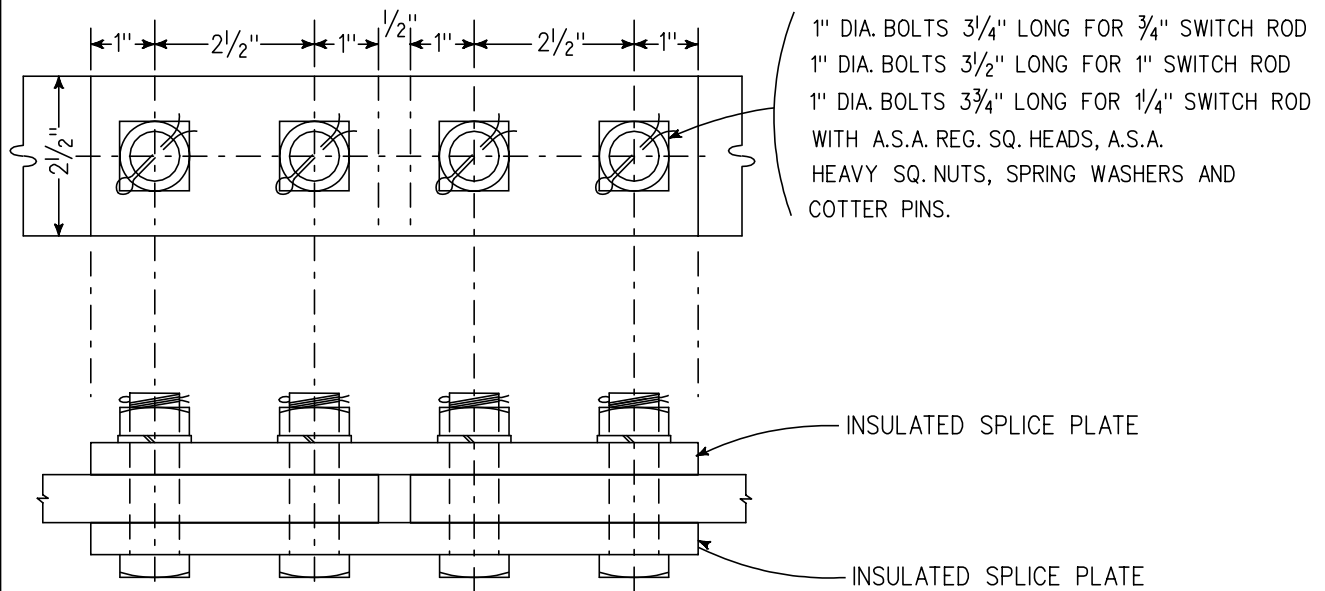
1-24-05  
PLAN DATE

**RR-62**

SHEET 1 OF 1



INSULATED SPLICE PLATE, 3M SCOTCHPLY MATERIAL  
OR APPROVED EQUAL



NOTE: DIMENSIONS WILL REQUIRE MODIFICATION  
IF EXISTING SWITCH ROD IS NOT AN  
A.R.E.M.A. STANDARD DESIGN.

TYPE I  
SWITCH ROD INSULATION

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

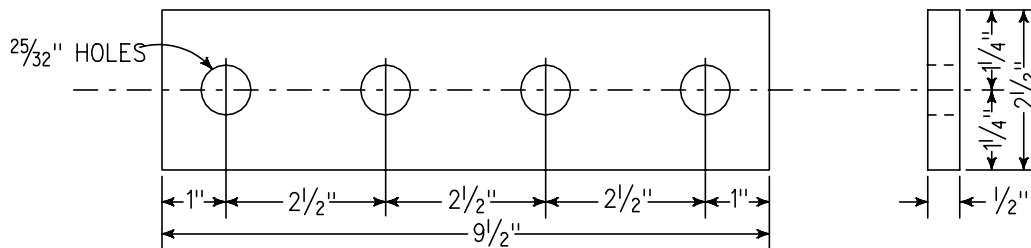
MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR

**SWITCH ROD INSULATION**

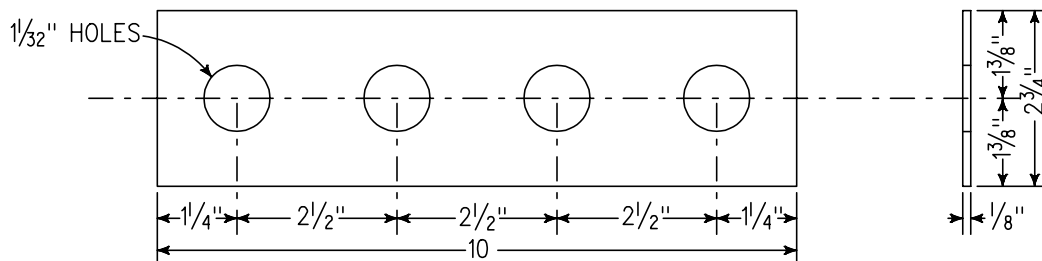
1-26-05  
REVISION DATE

**RR-90**

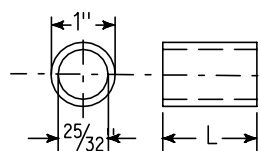
SHEET **1** OF **2**



10551 SPLICE PLATE , STEEL



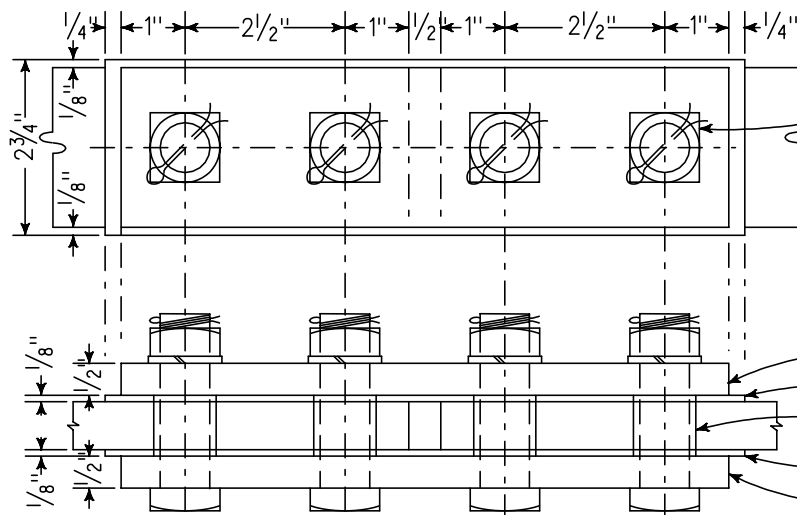
10552 INSULATION PLATE , FIBRE



INSULATION BUSHING , FIBRE

10553, L =  $\frac{3}{32}$ " FOR  $\frac{3}{4}$ " SWITCH ROD  
 10554, L =  $\frac{17}{32}$ " FOR 1" SWITCH ROD  
 10557, L =  $\frac{15}{32}$ " FOR  $\frac{1}{4}$ " SWITCH ROD

$\frac{3}{4}$ " DIA. BOLTS  $\frac{3}{4}$ " LONG FOR  $\frac{3}{4}$ " SWITCH ROD  
 $\frac{3}{4}$ " DIA. BOLTS  $\frac{3}{2}$ " LONG FOR 1" SWITCH ROD  
 $\frac{3}{4}$ " DIA. BOLTS  $\frac{3}{4}$ " LONG FOR  $\frac{1}{4}$ " SWITCH ROD  
 WITH A.S.A. REG. SQ. HEADS, A.S.A.  
 HEAVY SQ. NUTS, SPRING WASHERS AND  
 COTTER PINS



TYPE 2  
SWITCH ROD INSULATION

10555 INSULATION COMPL. FOR  $\frac{3}{4}$ " SWITCH ROD  
 10556 INSULATION COMPL. FOR 1" SWITCH ROD  
 10558 INSULATION COMPL. FOR  $\frac{1}{4}$ " SWITCH ROD

NOTE: DIMENSIONS WILL REQUIRE MODIFICATION  
 IF EXISTING SWITCH ROD IS NOT AN  
 A.R.E.M.A. STANDARD DESIGN.

**AAR**  
 SIG. SEC.  
**1055E**  
 MODIFIED

*William C. Homrich*  
 PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
 CONSTRUCTION & MAINTENACE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
 RAILROAD TYPICAL PLAN FOR

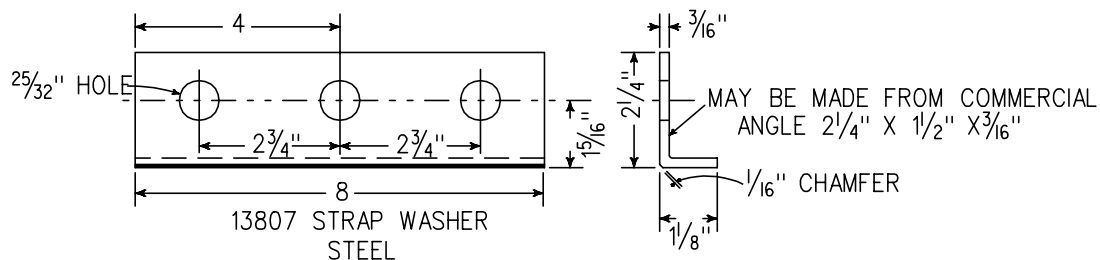
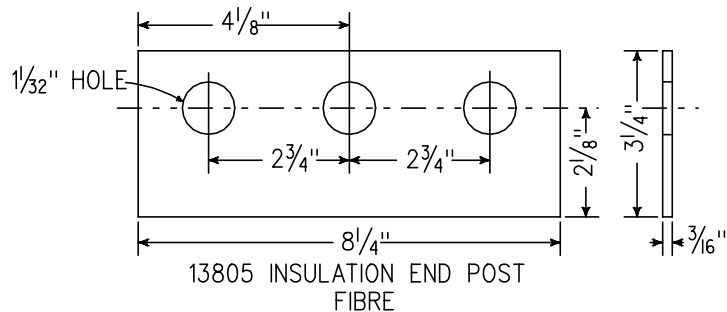
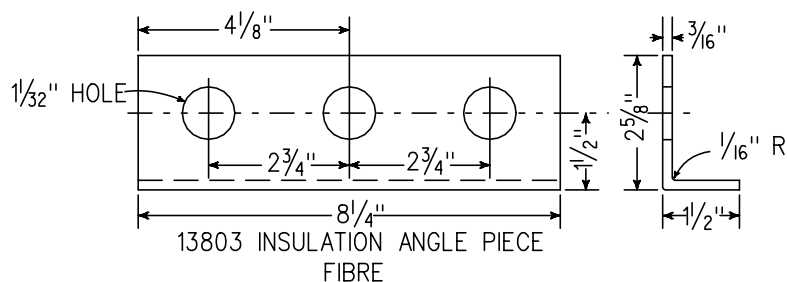
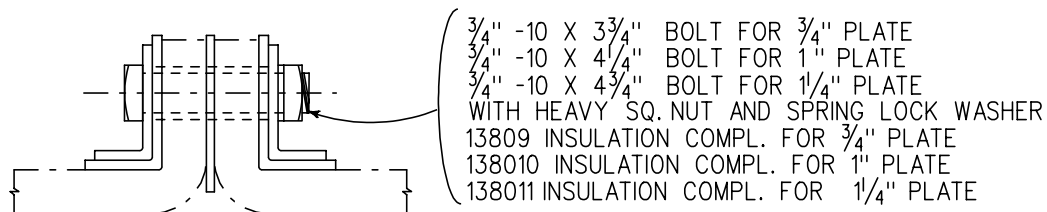
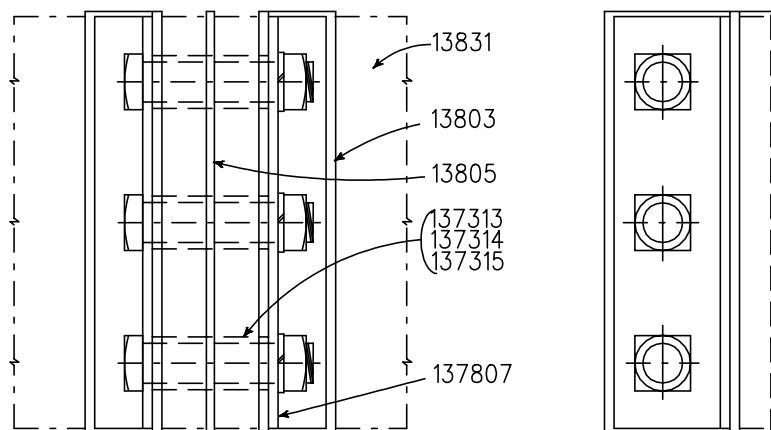
**SWITCH ROD INSULATION**

1-26-05  
 REVISION DATE

**RR-90**

SHEET **2** OF **2**

3M SCOTCHPLY MATERIAL OR APPROVED EQUAL



**AAR**  
SIG. SEC.  
**1380E**

*William C. Homrich*  
PROJECT DEVELOPMENT-ENGINEER

*David O. Whaley*  
CONSTRUCTION & MAINTENANCE-SUPERVISOR

MICHIGAN DEPARTMENT OF TRANSPORTATION  
RAILROAD TYPICAL PLAN FOR  
**GAGE PLATE INSULATION**  
FOR 8-INCH PLATE-DETAILS AND ASSEMBLIES.

1-24-05  
REVISION DATE

**RR-91**

SHEET **1** OF **1**